GAIT PARAMETER PLOTS

Instructions for generating plots from given code

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Overview & Purpose

This document serves as a reference for using the provided MATLAB code to generate plots from the gait parameter data. Simply run each MATLAB file to generate the requisite plots. The purpose of each MATLAB file is given below:

1. *fig0_plots.m* - generates plots for the number of studies per category (T-M, T-UM, O-M and O-UM)
2. *fig1_plots.m* - generates plots for step length (SL), cadence (C), walking speed (WS), total stance phase (ST), initial double limb support phase (iDLS) and single leg support phase (SLS).
3. *fig2_plots.m* - generates plots for hip angle ROM (range of motion) (HK), knee ROM (KK), ankle ROM (AK), ankle propulsive impulse (AI), hip extension moment (HME), hip flexion moment (HMF), knee extension moment (KME), knee flexion moment (KMF) and ankle plantarflexion moment (AME).
4. *fig3_plots.m* - generates plots for first peak of anteroposterior GRF (ground reaction force) (DP), second peak of anteroposterior GRF (AP), first peak of vertical GRF (VI), second peak of vertical GRF (VII), energy cost of walking (ECW) and heart rate (HR).
5. *fig4_plots.m* - generates plots for muscle activities (EMG) of five muscles: medial gastrocnemius (MG), lateral gastrocnemius (LG), tibialis anterior (TA), rectus femoris (RF) and biceps femoris long head (BF).

Categorization of data

The results for each parameter are divided into four or six categories depending upon the availability of data in literature. There are explained below, where X represents the gait parameter:

1. *X1* - treadmill-healthy (TH)
2. *X2* - overground-healthy (OH)
3. *X3* - overground-NI (ON). In case of six categories, *X3* represents results for overground-NI-nonparetic leg (ONN).
4. *X4* - treadmill-NI (TN). *X4* represents results for overground-NI-paretic leg (ONP) in case of 6 groups.
5. *X5* - treadmill-NI-nonparetic leg (TNN)
6. *X6* - treadmill-NI-paretic leg (TNP)

Linear regression results

The results for the linear regression procedure for each category of data are stored in the MATLAB workspace. For example, for gait parameter 'X', for the first category (TH), the linear regression results are stored in data structure 'X1_lm'. Although the above commands can also be used to plot the fitting lines, these values were entered manually in order to check and verify their consistency. The individual results can be accessed as through following commands:

1. Slope, m = X1_lm.Coefficients(2,1)
2. Intercept = X1_lm.Coefficients(1,1)
3. Adjusted R^2 = X1_lm.Rsquared.adjusted